

عنوان مقاله:

Variation of Yield, Morphological Traits, and Essential Oil in Populations of Five Species of *Stachys* L. in Iran

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خلاصه مقاله:

The genus *Stachys* L., (Lamiaceae family) has several spicy and aromatic species. In order to investigate the diversity of aerial biomass, morphological traits, and essential oil yield, ۴۷ populations out of five species including *S. lavandulifolia*, *S. laxa*, *S. inflata*, *S. germanica* and *S. byzantina* were evaluated during two years, at a research farm in Khorramabad, Iran. The traits such as plant height, leaf length, leaf width, stem number, stem diameter, vegetation cover, ۱,۰۰۰ seed weight, and aerial dry (DM) yield in all ۴۷ populations were measured. The essential oil was extracted using the hydrodistillation method with a Clevenger-type apparatus. The essential oil compounds were detected using GC and GC/MS. Data were analyzed using nested ANOVA with Minitab۱۶ software. The results showed that both *S. germanica* and *S. byzantina* had higher aerial biomass than the other species. The Saveh and Tehran populations of *S. inflata*, the populations of Qazvin and Qorveh in *S. lavandulifolia*, and the populations of Ardebil and Semirom in *S. Byzantine* were superior to the others for the measured traits. For essential oil yields (w/w), the highest and lowest values were ۲.۰ and ۰.۸%, obtained in *S. byzantina* and *S. lavandulifolia*, respectively. Phytochemical analyses of *S. lavandulifolia* identified ۴۳ compounds. The main compounds were β -eudesmol (۳.۴۸%), germacrene-D (۴.۵۹%), δ -cadinol (۴.۶۹%), bicyclogermacrene (۶.۸۵%), δ -cadinene (۹.۶۹%), spathulenol (۱۰.۰۸%) and α -cadinol (۱۲.۸۶%). *S. lavandulifolia*, with early maturity and higher essential oil, was recommended for domestication and breeding of improved varieties.

کلمات کلیدی:

.Phytochemical trait, *S. byzantine*, *S. germanica*, *S. inflata*, *S. lavandulifolia*, *S. laxa*

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